SEQUENCE LISTING

<110> Burian, Jan
Bartfeld, Daniel

<120> EFFICIENT METHODS FOR PRODUCING
ANTIMICROBIAL CATIONIC PEPTIDES IN HOST CELLS

<130> 660081.411

<140> US/09/444,218
<141> 1999-11-19

<160> 113

<170> FastSEQ for Windows Version 3.0

<210> 1
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Primer for PCR amplification

<400> 1
gcgtccggcg tagaggatcg 20

<210> 2
<211> 25
<212> DNA
<213> Artificial Sequence

<220>
<223> Primer for PCR amplification

<400> 2
ccgggatcca atgttgcaga agtag 25

<210> 3
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Primer for PCR amplification

<400> 3

gcgtccggcg tagaggatcg 20

<210> 4
<211> 38
<212> DNA
<213> Artificial Sequence

<220>
<223> Primer for PCR amplification

<400> 4
atatggatcc agatatgtat cataggttga tgttgggc 38

<210> 5
<211> 39
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthesized oligonucleotide used as template for PCR

<400> 5
tttaacgggg atccgtctca tatgatcctg aaaaaatgg 39

<210> 6
<211> 49
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthesized Oligonucleotide used as a template for PCR

<400> 6
ccgtggtggc cgtggcgtcg taaataagct tgatatcttg gtacctgcg 49

<210> 7
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
<223> Primer for PCR amplification

<400> 7
tttaacgggg atccgtctca tatg 24

<210> 8
<211> 25
<212> DNA

<213> Artificial Sequence

<220>
<223> Primer for PCR amplification

<400> 8
taagcttgat atcttggtac ctgcg 25

<210> 9
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
<223> Primer used for PCR modification of DNA fragment encoding MBI-11

<400> 9
tttaacgggg atccgtctca tatg 24

<210> 10
<211> 48
<212> DNA
<213> Artificial Sequence

<220>
<223> Primer used for PCR modification of DNA fragment encoding MBI-11

<400> 10
cgcgaagctt aataatacat aattttacga cgccacggcc accacggc 48

<210> 11
<211> 114
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthesized oligonucleotide used as a template for PCR

<400> 11
cgccagggtt ttcccagtca cgacggatcc gtctcatatg atcctgaaaa aatggccgtg 60
gtggccgtgg cgtcgtaaaa ttaattgaat tcgtcatagc tgtttcctgt gtga 114

<210> 12
<211> 24
<212> DNA
<213> Artificial Sequence

<220>

<223> Primer for PCR amplification

<400> 12
cgccagggtt ttcccagtca cgac 24

<210> 13
<211> 22
<212> DNA
<213> Artificial Sequence

<220>
<223> Primer for PCR amplification

<400> 13
tcacacagga aacagctatg ac 22

<210> 14
<211> 151
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthesized oligonucleotide used as a template for PCR

<400> 14
cgccagggtt ttcccagtca cgacggatcc gtctcatatg attctgcgtt ggccgtggtg 60
gccgtggcgt cgcaaaatga ttctgcgttg gccgtggtgg ccgtggcgtc gcaaaatggc 120
ggcctaagct tcgatcctct acgccggacg c 151

<210> 15
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
<223> Primer for PCR amplification

<400> 15
cgccagggtt ttcccagtca cgac 24

<210> 16
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Primer for PCR amplification

<400> 16
gcgtccggcg tagaggatcg 20

<210> 17
<211> 108
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthesized oligonucleotide us as a template for PCR

<400> 17
cgccagggtt ttcccagtca cgacggatcc gtctcatatg attctgcgtt ggccgtggtg 60
gccgtggcgt cgcaaaatgc ataagcttcg atcctctacg ccggacgc 108

<210> 18
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
<223> Primer for PCR amplification

<400> 18
cgccagggtt ttcccagtca cgac 24

<210> 19
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Primer for PCR amplification

<400> 19
gcgtccggcg tagaggatcg 20

<210> 20
<211> 97
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthesized oligonucleotide used as a template for PCR

<400> 20
cgccagggtt ttcccagtca cgacggatcc gtctatgcat gaagcggaac cggaagcgga 60
accgattaat taagcttcga tcctctacgc cggacgc 97

<210> 21
<211> 24

<212> DNA
<213> Artificial Sequence

<220>
<223> Primer for PCR amplification

<400> 21
cgccagggtt ttcccagtca cgac 24

<210> 22
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Primer for PCR amplification

<400> 22
gcgtccggcg tagaggatcg 20

<210> 23
<211> 114
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthesized oligonucleotide used as a template for PCR

<400> 23
cgccagggtt ttcccagtca cgacggatcc gtctcatatg actatgattc tgcgttggcc 60
gtggtggccg tggcgtcgca aaatgcataa gcttcgatcc tctacgccgg acgc 114

<210> 24
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
<223> Primer for PCR amplification

<400> 24
cgccagggtt ttcccagtca cgac 24

<210> 25
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Primer for PCR amplification

<400> 25
gcgtccggcg tagaggatcg 20

<210> 26
<211> 157
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthesized oligonucleotide used as a template for PCR

<400> 26
cgccagggtt ttcccagtca cgacggatcc gtctcatatg accatgaaat ggaaatcttt 60
catcaaaaaa ctgacctctg ctgctaaaaa agttgttacc accgctaaac cgctgatctc 120
tatgcatgct taagcttcga tcctctacgc cggacgc 157

<210> 27
<211> 11
<212> PRT
<213> Apis mellifera

<220>
<223> Anionic spacer peptide

<400> 27
His Glu Ala Glu Pro Glu Ala Glu Pro Ile Met
1 5 10

<210> 28
<211> 8
<212> PRT
<213> Apis mellifera

<400> 28
Glu Ala Glu Pro Glu Ala Glu Pro
1 5

<210> 29
<211> 8
<212> PRT
<213> Apis mellifera

<400> 29
Glu Ala Lys Pro Glu Ala Glu Pro
1 5

<210> 30
<211> 8
<212> PRT

<213> Apis mellifera

<400> 30
Glu Ala Glu Pro Lys Ala Glu Pro
1 5

<210> 31
<211> 8
<212> PRT
<213> Apis mellifera

<400> 31
Glu Ala Glu Ser Glu Ala Glu Pro
1 5

<210> 32
<211> 8
<212> PRT
<213> Apis mellifera

<400> 32
Glu Ala Glu Leu Glu Ala Glu Pro
1 5

<210> 33
<211> 6
<212> PRT
<213> Apis mellifera

<400> 33
Glu Pro Glu Ala Glu Pro
1 5

<210> 34
<211> 4
<212> PRT
<213> Apis mellifera

<400> 34
Glu Ala Glu Pro
1

<210> 35
<211> 13
<212> PRT
<213> Artificial Sequence

<220>
<223> Modified indolicidin cationic peptide

<400> 35

Ile Leu Lys Lys Trp Pro Trp Trp Pro Trp Arg Arg Lys
1 5 10

<210> 36
<211> 12
<212> PRT
<213> Artificial Sequence

<220>
<223> Modified indolicidin cationic peptide

<400> 36
Ile Leu Arg Trp Pro Trp Trp Pro Trp Arg Arg Lys
1 5 10

<210> 37
<211> 34
<212> PRT
<213> Apis mellifera

<400> 37
Tyr Val Pro Leu Pro Asn Val Pro Gln Pro Gly Arg Arg Pro Phe Pro
1 5 10 15
Thr Phe Pro Gly Gln Gly Pro Phe Asn Pro Lys Ile Lys Trp Pro Gln
20 25 30
Gly Tyr

<210> 38
<211> 34
<212> PRT
<213> Drosophila melanogaster

<400> 38
Val Phe Ile Asp Ile Leu Asp Lys Val Glu Asn Ala Ile His Asn Ala
1 5 10 15
Ala Gln Val Gly Ile Gly Phe Ala Lys Pro Phe Glu Lys Leu Ile Asn
20 25 30
Pro Lys

<210> 39
<211> 18
<212> PRT
<213> Apis mellifera

<400> 39
Gly Asn Asn Arg Pro Val Tyr Ile Pro Gln Pro Arg Pro Pro His Pro
1 5 10 15
Arg Ile

<210> 40
<211> 18
<212> PRT
<213> Apis mellifera

<400> 40
Gly Asn Asn Arg Pro Val Tyr Ile Pro Gln Pro Arg Pro Pro His Pro
1 5 10 15
Arg Leu

<210> 41
<211> 18
<212> PRT
<213> Apis mellifera

<400> 41
Gly Asn Asn Arg Pro Ile Tyr Ile Pro Gln Pro Arg Pro Pro His Pro
1 5 10 15
Arg Leu

<210> 42
<211> 12
<212> PRT
<213> Bos taurus

<400> 42
Arg Leu Cys Arg Ile Val Val Ile Arg Val Cys Arg
1 5 10

<210> 43
<211> 42
<212> PRT
<213> Bos taurus

<400> 43
Arg Phe Arg Pro Pro Ile Arg Arg Pro Pro Ile Arg Pro Pro Phe Tyr
1 5 10 15
Pro Pro Phe Arg Pro Pro Ile Arg Pro Pro Ile Phe Pro Pro Ile Arg
20 25 30
Pro Pro Phe Arg Pro Pro Leu Arg Phe Pro
35 40

<210> 44
<211> 59
<212> PRT
<213> Bos taurus

<400> 44
Arg Arg Ile Arg Pro Arg Pro Pro Arg Leu Pro Arg Pro Arg Pro Arg
1 5 10 15
Pro Leu Pro Phe Pro Arg Pro Gly Pro Arg Pro Ile Pro Arg Pro Leu
20 25 30
Pro Phe Pro Arg Pro Gly Pro Arg Pro Ile Pro Arg Pro Leu Pro Phe
35 40 45
Pro Arg Pro Gly Pro Arg Pro Ile Pro Arg Pro
50 55

<210> 45
<211> 37
<212> PRT
<213> Manduca sexta

<400> 45
Trp Asn Pro Phe Lys Glu Leu Glu Arg Ala Gly Gln Arg Val Arg Asp
1 5 10 15
Ala Val Ile Ser Ala Ala Pro Ala Val Ala Thr Val Gly Gln Ala Ala
20 25 30
Ala Ile Ala Arg Gly
35

<210> 46
<211> 37
<212> PRT
<213> Manduca sexta

<400> 46
Trp Asn Pro Phe Lys Glu Leu Glu Arg Ala Gly Gln Arg Val Arg Asp
1 5 10 15
Ala Ile Ile Ser Ala Gly Pro Ala Val Ala Thr Val Gly Gln Ala Ala
20 25 30
Ala Ile Ala Arg Gly
35

<210> 47
<211> 37
<212> PRT
<213> Manduca sexta

<400> 47
Trp Asn Pro Phe Lys Glu Leu Glu Arg Ala Gly Gln Arg Val Arg Asp
1 5 10 15
Ala Ile Ile Ser Ala Ala Pro Ala Val Ala Thr Val Gly Gln Ala Ala
20 25 30
Ala Ile Ala Arg Gly
35

<210> 48
<211> 37

<212> PRT
<213> Manduca sexta

<400> 48
Trp Asn Pro Phe Lys Glu Leu Glu Arg Ala Gly Gln Arg Val Arg Asp
1 5 10 15
Ala Val Ile Ser Ala Ala Ala Val Ala Thr Val Gly Gln Ala Ala Ala
20 25 30
Ile Ala Arg Gly Gly
35

<210> 49
<211> 24
<212> PRT
<213> Bombina variegata

<400> 49
Gly Ile Gly Ala Leu Ser Ala Lys Gly Ala Leu Lys Gly Leu Ala Lys
1 5 10 15
Gly Leu Ala Glx His Phe Ala Asn
20

<210> 50
<211> 27
<212> PRT
<213> Bombina orientalis

<400> 50
Gly Ile Gly Ala Ser Ile Leu Ser Ala Gly Lys Ser Ala Leu Lys Gly
1 5 10 15
Leu Ala Lys Gly Leu Ala Glu His Phe Ala Asn
20 25

<210> 51
<211> 27
<212> PRT
<213> Bombina orientalis

<400> 51
Gly Ile Gly Ser Ala Ile Leu Ser Ala Gly Lys Ser Ala Leu Lys Gly
1 5 10 15
Leu Ala Lys Gly Leu Ala Glu His Phe Ala Asn
20 25

<210> 52
<211> 17
<212> PRT
<213> Megabombus pennsylvanicus

<400> 52
Ile Lys Ile Thr Thr Met Leu Ala Lys Leu Gly Lys Val Leu Ala His

1 5 10 15
Val

<210> 53
<211> 17
<212> PRT
<213> Megabombus pennsylvanicus

<400> 53
Ser Lys Ile Thr Asp Ile Leu Ala Lys Leu Gly Lys Val Leu Ala His
1 5 10 15
Val

<210> 54
<211> 58
<212> PRT
<213> Bos taurus

<400> 54
Arg Pro Asp Phe Cys Leu Glu Pro Pro Tyr Thr Gly Pro Cys Lys Ala
1 5 10 15
Arg Ile Ile Arg Tyr Phe Tyr Asn Ala Lys Ala Gly Leu Cys Gln Thr
20 25 30
Phe Val Tyr Gly Gly Cys Arg Ala Lys Arg Asn Asn Phe Lys Ser Ala
35 40 45
Glu Asp Cys Met Arg Thr Cys Gly Gly Ala
50 55

<210> 55
<211> 24
<212> PRT
<213> Rana esculenta

<400> 55
Phe Leu Pro Leu Leu Ala Gly Leu Ala Ala Asn Phe Leu Pro Lys Ile
1 5 10 15
Phe Cys Lys Ile Thr Arg Lys Cys
20

<210> 56
<211> 33
<212> PRT
<213> Rana esculenta

<400> 56
Gly Ile Met Asp Thr Leu Lys Asn Leu Ala Lys Thr Ala Gly Lys Gly
1 5 10 15
Ala Leu Gln Ser Leu Leu Asn Lys Ala Ser Cys Lys Leu Ser Gly Gln
20 25 30

Cys

<210> 57
<211> 37
<212> PRT
<213> Hyalophora cecropia

<400> 57
Lys Trp Lys Leu Phe Lys Lys Ile Glu Lys Val Gly Gln Asn Ile Arg
1 5 10 15
Asp Gly Ile Ile Lys Ala Gly Pro Ala Val Ala Val Val Gly Gln Ala
20 25 30
Thr Gln Ile Ala Lys
35

<210> 58
<211> 35
<212> PRT
<213> Hyalophora cecropia

<400> 58
Lys Trp Lys Val Phe Lys Lys Ile Glu Lys Met Gly Arg Asn Ile Arg
1 5 10 15
Asn Gly Ile Val Lys Ala Gly Pro Ala Ile Ala Val Leu Gly Glu Ala
20 25 30
Lys Ala Leu
35

<210> 59
<211> 40
<212> PRT
<213> Drosophila melanogaster

<400> 59
Gly Trp Leu Lys Lys Leu Gly Lys Arg Ile Glu Arg Ile Gly Gln His
1 5 10 15
Thr Arg Asp Ala Thr Ile Gln Gly Leu Gly Ile Ala Gln Gln Ala Ala
20 25 30
Asn Val Ala Ala Thr Ala Arg Gly
35 40

<210> 60
<211> 36
<212> PRT
<213> Hyalophora cecropia

<400> 60
Trp Asn Pro Phe Lys Glu Leu Glu Lys Val Gly Gln Arg Val Arg Asp
1 5 10 15
Ala Val Ile Ser Ala Gly Pro Ala Val Ala Thr Val Ala Gln Ala Thr

20 25 30
Ala Leu Ala Lys
35

<210> 61
<211> 31
<212> PRT
<213> Sus scrofa

<400> 61
Ser Trp Leu Ser Lys Thr Ala Lys Lys Leu Glu Asn Ser Ala Lys Lys
1 5 10 15
Arg Ile Ser Glu Gly Ile Ala Ile Ala Ile Gln Gly Gly Pro Arg
20 25 30

<210> 62
<211> 37
<212> PRT
<213> Leiurus quin-questriatus hebraeus

<400> 62
Glx Phe Thr Asn Val Ser Cys Thr Thr Ser Lys Glu Cys Trp Ser Val
1 5 10 15
Cys Gln Arg Leu His Asn Thr Ser Arg Gly Lys Cys Met Asn Lys Lys
20 25 30
Cys Arg Cys Tyr Ser
35

<210> 63
<211> 13
<212> PRT
<213> Vespa crabo

<400> 63
Phe Leu Pro Leu Ile Leu Arg Lys Ile Val Thr Ala Leu
1 5 10

<210> 64
<211> 35
<212> PRT
<213> Mus musculus

<400> 64
Leu Arg Asp Leu Val Cys Tyr Cys Arg Ser Arg Gly Cys Lys Gly Arg
1 5 10 15
Glu Arg Met Asn Gly Thr Cys Arg Lys Gly His Leu Leu Tyr Thr Leu
20 25 30
Cys Cys Arg
35

<210> 65

<211> 35
<212> PRT
<213> Mus musculus

<400> 65
Leu Arg Asp Leu Val Cys Tyr Cys Arg Thr Arg Gly Cys Lys Arg Arg
1 5 10 15
Glu Arg Met Asn Gly Thr Cys Arg Lys Gly His Leu Met Tyr Thr Leu
20 25 30
Cys Cys Arg
35

<210> 66
<211> 33
<212> PRT
<213> Oryctolagus cuniculus

<400> 66
Val Val Cys Ala Cys Arg Arg Ala Leu Cys Leu Pro Arg Glu Arg Arg
1 5 10 15
Ala Gly Phe Cys Arg Ile Arg Gly Arg Ile His Pro Leu Cys Cys Arg
20 25 30
Arg

<210> 67
<211> 33
<212> PRT
<213> Oryctolagus cuniculus

<400> 67
Val Val Cys Ala Cys Arg Arg Ala Leu Cys Leu Pro Leu Glu Arg Arg
1 5 10 15
Ala Gly Phe Cys Arg Ile Arg Gly Arg Ile His Pro Leu Cys Cys Arg
20 25 30
Arg

<210> 68
<211> 31
<212> PRT
<213> Cavia cutteri

<400> 68
Arg Arg Cys Ile Cys Thr Thr Arg Thr Cys Arg Phe Pro Tyr Arg Arg
1 5 10 15
Leu Gly Thr Cys Ile Phe Gln Asn Arg Val Tyr Thr Phe Cys Cys
20 25 30

<210> 69
<211> 31

<212> PRT
<213> Cavia cutteri

<400> 69
Arg Arg Cys Ile Cys Thr Thr Arg Thr Cys Arg Phe Pro Tyr Arg Arg
1 5 10 15
Leu Gly Thr Cys Leu Phe Gln Asn Arg Val Tyr Thr Phe Cys Cys
20 25 30

<210> 70
<211> 30
<212> PRT
<213> Homo Sapien

<400> 70
Ala Cys Tyr Cys Arg Ile Pro Ala Cys Ile Ala Gly Glu Arg Arg Tyr
1 5 10 15
Gly Thr Cys Ile Tyr Gln Gly Arg Leu Trp Ala Phe Cys Cys
20 25 30

<210> 71
<211> 29
<212> PRT
<213> Homo Sapien

<400> 71
Cys Tyr Cys Arg Ile Pro Ala Cys Ile Ala Gly Glu Arg Arg Tyr Gly
1 5 10 15
Thr Cys Ile Tyr Gln Gly Arg Leu Trp Ala Phe Cys Cys
20 25

<210> 72
<211> 33
<212> PRT
<213> Oryctolagus cuniculus

<400> 72
Val Val Cys Ala Cys Arg Arg Ala Leu Cys Leu Pro Arg Glu Arg Arg
1 5 10 15
Ala Gly Phe Cys Arg Ile Arg Gly Arg Ile His Pro Leu Cys Cys Arg
20 25 30
Arg

<210> 73
<211> 33
<212> PRT
<213> Oryctolagus cuniculus

<400> 73
Val Val Cys Ala Cys Arg Arg Ala Leu Cys Leu Pro Leu Glu Arg Arg

```
 1               5                  10                  15
Ala Gly Phe Cys Arg Ile Arg Gly Arg Ile His Pro Leu Cys Cys Arg
            20                  25                  30
Arg
```

<210> 74
<211> 32
<212> PRT
<213> Rattus norvegicus

<400> 74

```
Val Thr Cys Tyr Cys Arg Arg Thr Arg Cys Gly Phe Arg Glu Arg Leu
 1               5                  10                  15
Ser Gly Ala Cys Gly Tyr Arg Gly Arg Ile Tyr Arg Leu Cys Cys Arg
            20                  25                  30
```

<210> 75
<211> 32
<212> PRT
<213> Rattus norvegicus

<400> 75

```
Val Thr Cys Tyr Cys Arg Ser Thr Arg Cys Gly Phe Arg Glu Arg Leu
 1               5                  10                  15
Ser Gly Ala Cys Gly Tyr Arg Gly Arg Ile Tyr Arg Leu Cys Cys Arg
            20                  25                  30
```

<210> 76
<211> 38
<212> PRT
<213> Bos taurus

<400> 76

```
Asp Phe Ala Ser Cys His Thr Asn Gly Gly Ile Cys Leu Pro Asn Arg
 1               5                  10                  15
Cys Pro Gly His Met Ile Gln Ile Gly Ile Cys Phe Arg Pro Arg Val
            20                  25                  30
Lys Cys Cys Arg Ser Trp
        35
```

<210> 77
<211> 40
<212> PRT
<213> Bos taurus

<400> 77

```
Val Arg Asn His Val Thr Cys Arg Ile Asn Arg Gly Phe Cys Val Pro
 1               5                  10                  15
Ile Arg Cys Pro Gly Arg Thr Arg Gln Ile Gly Thr Cys Phe Gly Pro
            20                  25                  30
```

Arg Ile Lys Cys Cys Arg Ser Trp
35 40

<210> 78
<211> 38
<212> PRT
<213> Bos taurus

<400> 78
Asn Pro Val Ser Cys Val Arg Asn Lys Gly Ile Cys Val Pro Ile Arg
1 5 10 15
Cys Pro Gly Ser Met Lys Gln Ile Gly Thr Cys Val Gly Arg Ala Val
20 25 30
Lys Cys Cys Arg Lys Lys
35

<210> 79
<211> 40
<212> PRT
<213> Sacrophaga peregrina

<400> 79
Ala Thr Cys Asp Leu Leu Ser Gly Thr Gly Ile Asn His Ser Ala Cys
1 5 10 15
Ala Ala His Cys Leu Leu Arg Gly Asn Arg Gly Gly Tyr Cys Asn Gly
20 25 30
Lys Ala Val Cys Val Cys Arg Asn
35 40

<210> 80
<211> 38
<212> PRT
<213> Aeschna cyanea

<400> 80
Gly Phe Gly Cys Pro Leu Asp Gln Met Gln Cys His Arg His Cys Gln
1 5 10 15
Thr Ile Thr Gly Arg Ser Gly Gly Tyr Cys Ser Gly Pro Leu Lys Leu
20 25 30
Thr Cys Thr Cys Tyr Arg
35

<210> 81
<211> 38
<212> PRT
<213> Leiurus quinquestriatus

<400> 81
Gly Phe Gly Cys Pro Leu Asn Gln Gly Ala Cys His Arg His Cys Arg
1 5 10 15
Ser Ile Arg Arg Arg Gly Gly Tyr Cys Ala Gly Phe Phe Lys Gln Thr

20 25 30
Cys Thr Cys Tyr Arg Asn
35

<210> 82
<211> 32
<212> PRT
<213> Phyllomedusa sauvagii

<400> 82
Ala Leu Trp Lys Thr Met Leu Lys Lys Leu Gly Thr Met Ala Leu His
1 5 10 15
Ala Gly Lys Ala Ala Leu Gly Ala Ala Asp Thr Ile Ser Gln Thr Gln
20 25 30

<210> 83
<211> 19
<212> PRT
<213> Drosophila melanogaster

<400> 83
Gly Lys Pro Arg Pro Tyr Ser Pro Arg Pro Thr Ser His Pro Arg Pro
1 5 10 15
Ile Arg Val

<210> 84
<211> 46
<212> PRT
<213> Rana esculenta

<400> 84
Gly Ile Phe Ser Lys Leu Gly Arg Lys Lys Ile Lys Asn Leu Leu Ile
1 5 10 15
Ser Gly Leu Lys Asn Val Gly Lys Glu Val Gly Met Asp Val Val Arg
20 25 30
Thr Gly Ile Asp Ile Ala Gly Cys Lys Ile Lys Gly Glu Cys
35 40 45

<210> 85
<211> 13
<212> PRT
<213> Bos taurus

<400> 85
Ile Leu Pro Trp Lys Trp Pro Trp Trp Pro Trp Arg Arg
1 5 10

<210> 86
<211> 25
<212> PRT

<213> Bos taurus

<400> 86
Phe Lys Cys Arg Arg Trp Gln Trp Arg Met Lys Lys Leu Gly Ala Pro
1 5 10 15
Ser Ile Thr Cys Val Arg Arg Ala Phe
20 25

<210> 87
<211> 34
<212> PRT
<213> Lactococcus lactis

<400> 87
Ile Thr Ser Ile Ser Leu Cys Thr Pro Gly Cys Lys Thr Gly Ala Leu
1 5 10 15
Met Gly Cys Asn Met Lys Thr Ala Thr Cys His Cys Ser Ile His Val
20 25 30
Ser Lys

<210> 88
<211> 34
<212> PRT
<213> Staphylococcus epidermidis

<400> 88
Thr Ala Gly Pro Ala Ile Arg Ala Ser Val Lys Gln Cys Gln Lys Thr
1 5 10 15
Leu Lys Ala Thr Arg Leu Phe Thr Val Ser Cys Lys Gly Lys Asn Gly
20 25 30
Cys Lys

<210> 89
<211> 56
<212> PRT
<213> Bacillus subtilis

<400> 89
Met Ser Lys Phe Asp Asp Phe Asp Leu Asp Val Val Lys Val Ser Lys
1 5 10 15
Gln Asp Ser Lys Ile Thr Pro Gln Trp Lys Ser Glu Ser Leu Cys Thr
20 25 30
Pro Gly Cys Val Thr Gly Ala Leu Gln Thr Cys Phe Leu Gln Thr Leu
35 40 45
Thr Cys Asn Cys Lys Ile Ser Lys
50 55

<210> 90
<211> 37

<212> PRT
<213> Leuconostoc gelidum

<400> 90
Lys Tyr Tyr Gly Asn Gly Val His Cys Thr Lys Ser Gly Cys Ser Val
1 5 10 15
Asn Trp Gly Glu Ala Phe Ser Ala Gly Val His Arg Leu Ala Asn Gly
20 25 30
Gly Asn Gly Phe Trp
35

<210> 91
<211> 23
<212> PRT
<213> Xenopus laevis

<400> 91
Gly Ile Gly Lys Phe Leu His Ser Ala Gly Lys Phe Gly Lys Ala Phe
1 5 10 15
Val Gly Glu Ile Met Lys Ser
20

<210> 92
<211> 23
<212> PRT
<213> Xenopus laevis

<400> 92
Gly Ile Gly Lys Phe Leu His Ser Ala Lys Lys Phe Gly Lys Ala Phe
1 5 10 15
Val Gly Glu Ile Met Asn Ser
20

<210> 93
<211> 21
<212> PRT
<213> Xenopus laevis

<400> 93
Gly Met Ala Ser Lys Ala Gly Ala Ile Ala Gly Lys Ile Ala Lys Val
1 5 10 15
Ala Leu Lys Ala Leu
20

<210> 94
<211> 24
<212> PRT
<213> Xenopus laevis

<400> 94
Gly Val Leu Ser Asn Val Ile Gly Tyr Leu Lys Lys Leu Gly Thr Gly

1 5 10 15
Ala Leu Asn Ala Val Leu Lys Gln
20

<210> 95
<211> 25
<212> PRT
<213> Xenopus laevis

<400> 95
Gly Trp Ala Ser Lys Ile Gly Gln Thr Leu Gly Lys Ile Ala Lys Val
1 5 10 15
Gly Leu Lys Glu Leu Ile Gln Pro Lys
20 25

<210> 96
<211> 14
<212> PRT
<213> Vespula lewisii

<400> 96
Ile Asn Leu Lys Ala Leu Ala Ala Leu Ala Lys Lys Ile Leu
1 5 10

<210> 97
<211> 26
<212> PRT
<213> Apis mellifera

<400> 97
Gly Ile Gly Ala Val Leu Lys Val Leu Thr Thr Gly Leu Pro Ala Leu
1 5 10 15
Ile Ser Trp Ile Lys Arg Lys Arg Gln Gln
20 25

<210> 98
<211> 40
<212> PRT
<213> Phormia terronovae

<400> 98
Ala Thr Cys Asp Leu Leu Ser Gly Thr Gly Ile Asn His Ser Ala Cys
1 5 10 15
Ala Ala His Cys Leu Leu Arg Gly Asn Arg Gly Gly Tyr Cys Asn Gly
20 25 30
Lys Gly Val Cys Val Cys Arg Asn
35 40

<210> 99
<211> 39
<212> PRT

<213> Phormia terronovae

<400> 99
Ala Thr Cys Asp Leu Leu Ser Gly Thr Gly Ile Asn His Ser Ala Cys
1 5 10 15
Ala Ala His Cys Leu Leu Arg Gly Asn Arg Gly Gly Tyr Cys Asn Arg
20 25 30
Lys Gly Val Cys Val Arg Asn
35

<210> 100
<211> 18
<212> PRT
<213> Limulus polyphemus

<400> 100
Arg Arg Trp Cys Phe Arg Val Cys Tyr Arg Gly Phe Cys Tyr Arg Lys
1 5 10 15
Cys Arg

<210> 101
<211> 18
<212> PRT
<213> Limulus polyphemus

<400> 101
Arg Arg Trp Cys Phe Arg Val Cys Tyr Lys Gly Phe Cys Tyr Arg Lys
1 5 10 15
Cys Arg

<210> 102
<211> 18
<212> PRT
<213> Sus scrofa

<400> 102
Arg Gly Gly Arg Leu Cys Tyr Cys Arg Arg Arg Phe Cys Val Cys Val
1 5 10 15
Gly Arg

<210> 103
<211> 16
<212> PRT
<213> Sus scrofa

<400> 103
Arg Gly Gly Arg Leu Cys Tyr Cys Arg Arg Arg Phe Cys Ile Cys Val
1 5 10 15

<210> 104
<211> 18
<212> PRT
<213> Sus scrofa

<400> 104
Arg Gly Gly Gly Leu Cys Tyr Cys Arg Arg Arg Phe Cys Val Cys Val
1 5 10 15
Gly Arg

<210> 105
<211> 51
<212> PRT
<213> Apis mellifera

<400> 105
Val Thr Cys Asp Leu Leu Ser Phe Lys Gly Gln Val Asn Asp Ser Ala
1 5 10 15
Cys Ala Ala Asn Cys Leu Ser Leu Gly Lys Ala Gly Gly His Cys Glu
20 25 30
Lys Gly Val Cys Ile Cys Arg Lys Thr Ser Phe Lys Asp Leu Trp Asp
35 40 45
Lys Tyr Phe
50

<210> 106
<211> 39
<212> PRT
<213> Sacrophaga peregrina

<400> 106
Gly Trp Leu Lys Lys Ile Gly Lys Lys Ile Glu Arg Val Gly Gln His
1 5 10 15
Thr Arg Asp Ala Thr Ile Gln Gly Leu Gly Ile Ala Gln Gln Ala Ala
20 25 30
Asn Val Ala Ala Thr Ala Arg
35

<210> 107
<211> 39
<212> PRT
<213> Sacrophaga peregrina

<400> 107
Gly Trp Leu Lys Lys Ile Gly Lys Lys Ile Glu Arg Val Gly Gln His
1 5 10 15
Thr Arg Asp Ala Thr Ile Gln Val Ile Gly Val Ala Gln Gln Ala Ala
20 25 30
Asn Val Ala Ala Thr Ala Arg

35

<210> 108
<211> 47
<212> PRT
<213> Bos taurus

<400> 108
Ser Asp Glu Lys Ala Ser Pro Asp Lys His His Arg Phe Ser Leu Ser
1 5 10 15
Arg Tyr Ala Lys Leu Ala Asn Arg Leu Ala Asn Pro Lys Leu Leu Glu
20 25 30
Thr Phe Leu Ser Lys Trp Ile Gly Asp Arg Gly Asn Arg Ser Val
35 40 45

<210> 109
<211> 17
<212> PRT
<213> Tachypleus tridentatus

<400> 109
Lys Trp Cys Phe Arg Val Cys Tyr Arg Gly Ile Cys Tyr Arg Arg Cys
1 5 10 15
Arg

<210> 110
<211> 17
<212> PRT
<213> Tachypleus tridentatus

<400> 110
Arg Trp Cys Phe Arg Val Cys Tyr Arg Gly Ile Cys Tyr Arg Lys Cys
1 5 10 15
Arg

<210> 111
<211> 46
<212> PRT
<213> Hordeum vulgare

<400> 111
Lys Ser Cys Cys Lys Asp Thr Leu Ala Arg Asn Cys Tyr Asn Thr Cys
1 5 10 15
Arg Phe Ala Gly Gly Ser Arg Pro Val Cys Ala Gly Ala Cys Arg Cys
20 25 30
Lys Ile Ile Ser Gly Pro Lys Cys Pro Ser Asp Tyr Pro Lys
35 40 45

<210> 112

<211> 23
<212> PRT
<213> Trimeresurus wagleri

<400> 112
Gly Gly Lys Pro Asp Leu Arg Pro Cys Ile Ile Pro Pro Cys His Tyr
1 5 10 15
Ile Pro Arg Pro Lys Pro Arg
20

<210> 113
<211> 63
<212> PRT
<213> Androctonus australis hector

<400> 113
Val Lys Asp Gly Tyr Ile Val Asp Asp Val Asn Cys Thr Tyr Phe Cys
1 5 10 15
Gly Arg Asn Ala Tyr Cys Asn Glu Glu Cys Thr Lys Leu Lys Gly Glu
20 25 30
Ser Gly Tyr Cys Gln Trp Ala Ser Pro Tyr Gly Asn Ala Cys Tyr Cys
35 40 45
Lys Leu Pro Asp His Val Arg Thr Lys Gly Pro Gly Arg Cys His
50 55 60